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ABSTRACT

This working paper documents the efforts of a professional information center (PIC) in Denver to provide resources that aid teachers and administrators in selecting software programs for varied microcomputer uses. The report outlines the development of PIC as a coordinator and clearinghouse for organizing and disseminating information on computers to schools served by Denver's Southeast Board of Cooperative Services. It examines PIC's current programs and presents a blueprint for expanding its scope to include informing interested educators about PIC's current awareness and professional library services, providing literature search services, and distributing current "state of the art" reviews on microcomputer applications. Appendices include listings of directories, catalogs, and journals that provide information on educational software. (MER)

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DEVELOPING RESOURCE SUPPORT FOR EDUCATORS USING MICROCOMPUTERS

by
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July 14, 1981

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INTRODUCTION

The overall mission of the Professional Information Center (PIC) of the Southeast Metropolitan Board of Cooperative Services (SEMBCS) is to provide current information to aid educators in program planning, curriculum development, administrative decision making, and professional growth. Resources and services provided by PIC to member school districts include a current awareness service, preview of textbooks, tradebooks, and audiovisual materials, a computerized literature search service and document delivery, and a large collection of professional books, serials, indexes, and catalogs. One of the key elements contributing to the usefulness of this type of program is its ability to respond to changing needs of educators. Because of growing demand for information and resources regarding microcomputers in education, one of the principal goals for the Professional Information Center during the 1981-82 school year is to expand its services to include resources that aid teachers and administrators in the selection of software programs for microcomputers.

At this writing, approximately 75% of all the schools served by PIC have purchased, or will probably have purchased by Fall of 1981, at least one microcomputer in the building for instructional use. Therefore, the main emphasis of the program will be to provide resources that aid in the selection of software rather than hardware. Although this is a relatively new task for educators, much work has been done by several organizations and individuals to help them with this process. Whenever possible, PIC will capitalize on these efforts rather than try to

"reinvent the wheel." The proposed program does not include provisions for direct training of teachers, technical assistance in the use of equipment, helping teachers to develop their own programs, or writing software evaluations or reviews. The present staffing situation, both in terms of limited numbers and technical expertise makes these activities impossible. Instead, the Professional Information Center will play a coordinating and clearinghouse role by organizing and disseminating information available through the various sources to be described throughout this paper. PIC will also enhance its present current awareness service, professional library collection, and literature search service in order to provide educators with current "state of the art" information concerning microcomputer applications, program effectiveness and evaluation, and the new developments in the field.

In addition to acting as a sort of blueprint for the development of this particular resource center, this paper should provide useful information to other individuals or school districts who wish to begin to gather materials on the subject. It is a working paper compiled from information gathered over the past six months. Despite my efforts to make it as comprehensive as possible, there are probably several gaps in the resources identified here. I welcome any readers to "update" me on pertinent information which I have overlooked. I would also appreciate comments regarding the perceived usefulness and feasibility of the proposed resource center program and activities.

SOFTWARE AVAILABILITY

There is an abundance of microcomputer software available through large commercial vendors as well as through the smaller "cottage industry"

consisting of programmers and small companies. Some experts recommend that inexperienced buyers consider the large suppliers, since most of the products have been tested and there is a good chance that the company will not go out of business overnight. It has been pointed out, however, that the products of big publishers have the disadvantage of being "sanitized," that is, designed to sell in as many markets as possible.[1] So the small companies should not be ignored. Often their products are developed by experienced teachers who also have an expertise in programming. Before making a selection decision, teachers and administrators need to have access to a data base containing information of available programs.

Objective I: To provide access to information about software availability.

Activities:

*A. Develop and continually update a list of suppliers. This list will be available to all patrons requesting it.[2]

*B. Write to each vendor requesting brochures, catalogs, and placement on their mailing lists. (This will probably result in more vendors being added to our list of suppliers because of the common practice of selling and exchanging mailing lists.)

C. File brochures and catalogs alphabetically by company name or name of publisher.

D. Obtain directories and catalogs which list multiple sources of microcomputer software. These catalogs and directories

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*All of the activities preceded by an asterisk are those which I have determined to be appropriate applications for the microcomputer we intend to purchase for the Professional Information Center.

often index programs by subject area, by hardware systems, and by grade level. The majority of the directories make no attempt to evaluate the software. They are useful sources to consult before looking through the commercial catalog files, or before trying to locate evaluative information. An annotated list of some of these directories is contained in Appendix A.

Educators will be encouraged to use these resources by visiting the center in person. Materials will not be circulated unless they duplicate copies. The PIC staff will also answer telephone and written requests of the type which require a short answer: pricing information, company addresses, etc.

SOFTWARE SELECTION

The issues involved in selecting the appropriate software programs for microcomputers parallel those found in the selection of other types of media for instructional purposes. The audience (grade level), educational objectives, and format of presentation are all important considerations that need to be addressed. With other types of materials such as textbooks, this process is made easier because of the variety of review sources available and the willingness of most publishers to supply examination copies. This is not the case with the majority of software suppliers. They are not willing to send out preview copies of their products. One of the main reasons for this is the relative ease with which software programs can be copied. Darlene Myers, manager of

the University of Washington Computing Information Center offers additional reasons:

> Unless you can show them that it is profitable to allow you to preview their program they probably don't want the hassle. Why?
> a. It is very seldom that you can purchase a program and install it and be able to run it. So the producer may not want to get into the consulting of the product, especially when you have not even put up your $$$ to prove your sincerity.
> b. Unless you have a "name" or are a retail company of some repute who wishes to include the product in question in a catalog and thus add to its promotion for a cut or whatever, I don't think you will get much response (to a request to preview).[3]

In some cases, demonstration diskettes or cassettes which contain portions of programs are available for purchase. They are not inexpensive, however, and would be useless once the decision to purchase or not to purchase has been made. Recognizing the problem of limited review sources, several agencies and publishing companies are developing review and evaluation services to help out with the selection process. In keeping with the theme of not "reinventing the wheel," PIC will attempt to tap all of these sources in order to accomplish the second objective of the proposed center.

Objective II: To aid educators in selecting appropriate microcomputers software programs for educational purposes.

Activities:

A. Provide information that will help educators to develop guidelines, and selection criteria appropriate to their needs. The intent here is not to compile formal guidelines or develop a single selection tool for use by all school districts. Instead, the staff will provide assistance by providing educators access to a variety of resources to help them with this process.[4]

B. Obtain and organize for retrieval published reviews and

evaluations of commercially available software. Sources for this type of information can fall into three categories:

1. Journals which review educational software as a regular feature. (See Appendix B)

2. Directories and publications whose specific purpose is to publish reviews of educational software programs. (See Appendix B)

3. Information from clearinghouses and resources centers which are funded to provide information about educational software evaluation. (See descriptions of MICROSIFT and TERC in Appendix C.)

C. Obtain and organize for retrieval reviews and evaluations of software which are not published by the above mentioned sources...

1. Evaluative information supplied by users in the districts. Again, no attempt will be made by PIC to require that they fill out a standard evaluation form in order for us to accept their evaluation. Any form of evaluation designed by the individual or adopted by the school district which meets their needs will be accepted. Evaluative and review information from educators from non member school districts will also be accepted for inclusion in the files.

2. Another promising, though yet to be proven, source of evaluative information may come from the hardware vendors. Most school districts purchase their microcomputers using the bidding process. The recent winner of a rather large contract in one of the districts has expressed his intention to offer software selection support by evaluating programs and providing a preview service (on site at his store). This on-site demonstration will help to alleviate

the risk of buying programs which do not satisfy educational objectives or meet philosophical criteria. The one drawback to this source of selection help is the fact that most hardware vendors or computer stores also are software distributors. It is doubtful that this type of reviewer will be able to give a thoroughly objective evaluation of a product for which he or she receives a sales commission. Nevertheless, the opportunity to try out a program firsthand at the store may be the only way to avoid the mistake of ordering sight unseen. Writing in The Medium, Jan Naumer of the University of Denver, mentions a local computer store that offers several programs for the Apple that one may have copies made of, free of charge, by providing a floppy disk and making the request.[5]

D. Copies of the reviews and evaluations from the above-mentioned sources will be filed with the vendor-supplied information and their catalogs.

DIRECTORY LIST OF MICROCOMPUTER PROGRAMS OWNED BY THE SCHOOLS

Closely related to the objective and related activities described above is a third area of endeavor. Once a school has purchased a software program, that information should be made available to others in the system. This type of information would take the form of a directory with several access points; title of program, subject area, producer, and name of school. A main record would include the above information as well as the name of the contact person(s) in the building using the program, the grade level(s) where it is being used, the price of the program, and hardware needed to use the program. In submitting the titles of programs to the directory,

purchasers or users must agree that PIC can supply their names to individuals expressing an interest in the program.

Objective III: To organize a system by which information about programs already owned by the schools can be exchanged.

Activities:

*A. Develop a system that will accept, organize, store, and retrieve this information. A manual card index is a possible way to do this especially at the beginning stages. The eventual format should be a data base created with the aid of a microcomputer and appropriate software. The information would be stored on a diskette which could be copied and updated frequently by individual school media specialists and then made available to teachers in their buildings.

B. Encourage educators to make effective use of this system. The obvious advantages that such a system provides need to be emphasized:

1. The opportunity to obtain firsthand information and "gut-reactions" from actual users.
2. The ability to preview the material at the school where it is being used.
3. A way to get in contact with others who share common interests and concerns. The formation of these informal sharing networks could be the most beneficial outcome of the entire project!

A comment about copyright

Sometime during this process, individuals will need to be reminded that software programs are protected by copyright laws and that unauthorized copying of programs violates the law. Recent legal opinions obtained by the National Audio-Visual Association, Inc. (NAVA) confirm this fact.

Partial text of the opinion they received follows:

> A school system...may not purchase a cassette or diskette and simply reproduce unlimited copies to be disseminated around its various locations. It may make, perhaps one copy under "fair use" exemptions in the event that the original is lost, destroyed or becomes worn. If, however, the school system desires to have several such cassettes or diskettes in circulation, then it must purchase, rent or lease the additional copies.
>
> It is this firm's opinion that it would be a clear case of copyright infringement to reproduce multiple copies from an original cassette or diskette in lieu of ordering additional sets, and we would expect any instructor guilty of making such unauthorized copies to be prosecuted under the 1976 (Copyright) Act's punitive provisions...
>
> Particularly because today's technology allows copying to be done more easily, more quickly and less expensively than ever before, users of audio-visual and microcomputer software should be aware of the fact that they are still violating the law when they copy without permission of the copyright owner any copyrighted materials. If the user of audio-visual or microcomputer software has any doubt as to whether such copying is permissible, he or she is under the legal obligation to communicate directly with the copyright owner to establish such permission.[6]

CURRENT AWARENESS, PROFESSIONAL LITERATURE, REFERENCE AND REFERRAL SERVICE

The Professional Information Center will continue to operate a responsive system that provides educators with current information relevant to their needs.

Objective IV: To enhance present system to include more resources about microcomputer applications in education in order to accommodate anticipated increase in the number of requests for this type of information.

Activities:

*A. Dissemination of information about articles published about microcomputers in educational and computer journals to educators using the magazine current awareness service. They can request that the contents page of selected publications be sent to them when the current issue is received by PIC. In certain cases, publishers

have given PIC written permission to reproduce selected articles for the users of this service.

B. New subscriptions to magazines and new professional books will be added to the collection, within the constraints of a limited budget. See Appendix B for a list of publications which have been selected for purchase or are being considered for purchase in the future.

C. Vertical files containing articles, pamphlets, and brochures will be maintained under these and other possible subject headings:

MICROCOMPUTERS: ISSUES AND TRENDS
MICROCOMPUTER APPLICATIONS: ELEMENTARY/MIDDLE/SECONDARY EDUCATION
MICROCOMPUTER APPLICATIONS: GENERAL
MICROCOMPUTER HARDWARE
MICROCOMPUTER: SOFTWARE DEVELOPMENT

D. Resource persons, organizations, and user groups involved with microcomputer applications in education will be tapped. This type of resource is invaluable to those who wish to keep in touch with others who are working in the field. Many organizations and clearinghouses of this nature also publish newsletters of their activities. A List of some of these contacts is contained in Appendix C.

E. The literature search service will be provided to retrieve information on specific topics related to questions about microcomputers. PIC has access to the Bibliographic Retrieval Service (BRS) and the Lockheed Dialog System to search ERIC, NICEM, Magazine Index, NTIS, and other data bases which contain this information.

CONCLUSION

The resource service described in this paper will be evaluated in the summer of 1982 on the basis of whether the objective and activities set forth in the proposal have been met. The other source of evaluation information

will be obtained from statistics kept on the usage of the resources by educators.

The success of this program will be largely dependent upon support provided by district administrators, the Computers in Education Committees, and the SEMBCS Board of Directors. One indication of support so far is the fact that the initiative to provide microcomputer resource services came from administrators. I have met with the Media Production Consultant and staff development people in one of the districts to explore areas of cooperation and avoid duplication of efforts. Further efforts along these lines need to be undertaken. Because of these added services, next year should be a very busy, interesting, and exciting year for the Professional Information Center.

Notes

1. Coit, Lois, "Pick the Software That Helps Kids Learn." Executive Educator, March 1981, pp. 21-22, 37

2. Listings of these companies (over 125 of them) can be located in the following sources:
   a. Lopez, Dr. Antonio M., Jr. "Microcomputers and Education." Creative Computing, March 1981, pp. 140-143. (This article also lists magazines, organizations, clearinghouses, university educators, and K-12 educators involved in microcomputers; in addition, the article contains a bibliography of articles written on the use of microcomputers in education.)
   b. "Resources Are Macro for Micros." Instructional Innovator, September 1980, pp. 29-31. (Also lists magazines and newsletters, user groups, software book publisher, and hardware manufacturers.)
   c. School Microware Directory, v. 1, nos. 1, 2, 3, 4 (September 1980, p. 47; December 1980, p. 18: February 1981, p. 29; April 1981, p. 23)

3. Darlene Meyers, personal letter, June 4, 1981.

4. Teachers or administrators wishing to develop an evaluation or selection tool should consider the following sources for information.
   a. "School Microware Evaluation Form," School Microware Directory, April 1981, p. 27. (This form is reproduced and included as Appendix D.)
   b. Staples, Betsy, "Van Helps Schools Select the Right Computer." Creative Computing, March 1981, pp. 106-8, 110, 112. (Article

also contains useful criteria for selecting microcomputer systems.)

c. Eldredge, Bruce and Kenneth Delp. "How to Evaluate Educational Computer Programs." Media & Methods, March 1981, pp. 4, 15.

d. Coit, Lois. "Pick the Software That Helps Kids Learn." Executive Educator, March 1981, pp. 21-22, 37.

e. EPIE Institute, P. O. Box 620, Stony Brook, N.Y. 11790. In cooperation with the Microcomputer Resource Center at Teacher's College, Columbus Univers.ty, EPIE has developed an analysis instrument for use in training and certifying educators to be analysists of instructional software for the upcoming EPIE publication. (See Appendix B).

f. "Dick Harden, Director, Instructional Materials, Adams County District 14 has been developing and evaluating a selection tool with the assistance of students in 'Microcomputer Applications in Education' which he has been teaching in conjunction with Bob Brown at the Colorado School of Mines. Not only is he looking for input, but also he is willing to share information." Quoted from Naumer, Jan. "Software Evaluation." The Medium: The Newsletter of the Colorado Educational Media Association, pp. 1-2.

5. Naumer, p. 1.

6. The following memorandums were prepared for the National Audio-Visual Association (NAVA) Materials Council by the law firm of Gould, Reichert, and Strauss of Cincinnati, Ohio, in response to the many questions that NAVA has received regarding software copyright issues.

a. "Copyright Law: Impact on Microcomputer Software" (August 14, 1980)

b. "Copyright and Microcomputers -- An Update" (March 23, 1981)

c. "Coyprights and Microcomputers -- An Update on Public Law 96-517" (April 1981)

Copies of these memorandums can be obtained by writing to:

Robert M. Peterson, Chairman
NAVA Materials Council
3150 Spring Street
Fairfax, Virginia 22031

APPENDICES

APPENDIX A

Directories and catalogs listing educational software

Vanloves Apple Software Directory, Vital Information, Inc., 350 Union Station, Kansas City, Mo. 64108 (Available from local computer stores) $19.95. While this directory is a comprehensive list of programs available for several applications, it contains a large section on educational programs.

K-12 Micromedia. Published by a software retailer called K-12 Micromedia Located at P. O. Box 17, Valley College, N.Y. 10989. They claim to have "scouted the market" to find software and books for micro-based learning. As a result they have compiled a list of over 250 programs from over 50 producers based on personal review, published reviews, educator's opinions and recommendations. The catalog is available free of charge.

MARCK - Educational Software Catalog. 280 Linden Avenue, Branford, Connecticut 06082 (no price information available).

Queue - Catalogs of educational software. 5 Chapel Hill Drive, Fairfield, Connecticut 06432, price $8.95.

Both of the above sources were recommended by Dan Watts, Director of the Computer Resource Center for Teachers of the Technical Education Research Center (TERC) in Cambridge. Although I have sent for them I have not had the opportunity to review them.

School Microware Directory, Dresden Associates, Inc., P.O. Box 246, Dresden, Maine 04342. Published four times per year. Subscription rate is $20. per year; single copy price is $5.
1980-81: The September issue was the full directory edition, with updates published in December, February, and April. The Directory was organized as follows:

1. Software descriptions in sequence by school department, subject, and lowest grade level.
2. Summary listing of software for individual hardware systems.
3. Alphabetical listing of software suppliers and addresses.
4. Glossary of terms used.

The 1981-82 edition will be enhanced by these additional features:

1. Inclusion of programs for school administrative use
2. Larger product descriptions
3. Supplier telephone numbers
4. Each issue will be cumulative
5. An alphabetical list by product name

APPENDIX B

1. Journals that review software:

Classroom Computer News, 6 times a year,subscription rate: $9. Classroom Computer News Company, P.O. Box 266, Cambridge, Massachusetts 02138. This 30-page newsletter is written in lay language for the classroom teacher who has little knowledge or understanding of electronics.

The Computing Teacher, 9 times a year, subscription rate: $14.50. c/o Computing Center, Eastern Oregon State College, La Grande, Oregon 97850. Described by its editors as a journal for educators interested in teaching about computers and their use, this magazine is designed primarily for teachers in elementary and secondary schools and for teachers of teachers.

CourseWare Magazine, 5 times a year, subscription rate: $50. 4819 N. Millbrook #220, Fresno, Ca. 93726. This magazine contains documented educational programs for pupils between kindergarten and twelfth grade for use in the classroom or at home. Each issue includes a ten-minute cassette with at least two programs selected from the curriculum areas of business, consumer economics, English, fine arts, foreign language, industrial arts, mathematics, physical education, science and social studies. A complete teacher's guide, a student's guide, worksheets, suggestions on how to adapt programs to classroom use, a description of variables used in the program and a full listing of the program will be included in each issue.

Creative Computing, monthly, subscription rate: $20. One product of a publisher which also produces computer software, games, books, references, and appropriate T-shirts. Creative Computing is notable for its evaluations of computer systems, peripherals, and software. Emphasis is on educational applications and on small computers.

Microcomputers in Education, 12 times a year, subscription rate $24. Queue, Incorporated, 5 Chapel Hill Drive, Fairfield, Ct. 06432. A monthly newsletter covering the educational software market. Sources of educational software reviews, new releases, articles and analysis, magazine and book reviews, organization news and news of conventions, shows, and meetings.

Electronic Learning, bimonthly, subscription rate $17. per year. Scholastic, Inc., 50 West 44th Street, New York, N.Y. 10036.
Non technical articles, case histories, research reports, and guides for buying hardware in addition to descriptions and reveiws of software programs and packages

Robert Purser's Software Directory, 4 times a year, subscription rate: $12. Box 466, El Dorado, Ca. 95623. Robert Purser prepares a long (90 pages) newsprint software directory, which includes a substantial number of educational programs along with his own editorial reviews which are useful guides to the level and value of the program.

School Microware Reviews, simi-annually, subscription rate: $30. each edition. Dresden Associate, Inc., P.O. Box 246, Dresden, Maine 04342. Each edition will contain reviews of over a hundred programs and packages. Also included will be an index to software reviews published since 1978 in most nationally circulated journals. School Microware Directory subscribers can get free copies of SMW Reviews by helping to review programs. Non-subscribers get a 50% discount on the per edition price.

Educational Products Information Exchange (EPIE). This organization announced in the April 1981, issue of EPIEgram Materials that they will begin a new publication called EPIE Microcomputer Reports (Courseware and Hardware). Each publication costs $25. and is available through: EPIE Institute, P.O..Box 620, Stony Brook, N.Y. 11790.

2. Other journals which publish articles about microcomputers in education:

AEDS Journal. Educational Data Systems, 1201 Sixteenth Street NW, Washington, D.C. 20036. $25/year.

Apple Shoppe. David E. Smith, Editor, P.O. Box 701, Placentia, Ca. 92670. $12/year.

Byte. 70 Main Street, Peterborough, NH 03458. $18/year. (For more sophisticated users)

Journal of Computer-Based Instruction. Association for the Development of Computer-Based Instructional Systems, 8120 Penn Avenue South, Bloomington, Mn. 55431. $20/year.

Courseware Quarterly. Academic Computing Association, P.C Box 27561, Phoenix, Az. 85061. $5/year.

Instructional Innovator. Association for Educational Communications and Technology, 1126 Sixteenth Street NW, Washington, DC 20036. $18/year.

Media and Methods. American Society of Educators, 1511 Walnut Stree, Philadelphia, Pa. 19102. $19/year.

T.H.E. Journal. Technological Horizons in Education, 7 Spruce St., Acton, Mass. 01720. $15/year. (Free to school principals)

Other publications:

The Best of Creative Computing. Vol. 1, Vol. 2; each $8.95. Box 789-M, Morristown, NJ 07960.

Harvard Directory of Schools Making Extensive Use of Microcomputers. ($5) Gutman Library, Appian Way, Cambridge, Ma. 02138. The directory lists about 250 U.S. education sites which use microcomputers for a variety of Purposes.

Another anthology, 1980 Periodical Guide for Computerists, contains more than 3,000 references to articles selected from 24 publications. Subject indexed. $5.95. Also, 1976-79 editions at $5 each. E. Berg Publications, 622 East Third, Kimball, NE 68145.